FRM

Flood Risk Management Newsletter

Establishing a Federal Flood Risk Management Standard

PL 84-99 Policy Updates

Understanding the North Atlantic Coastal Comprehensive Study

April 2015 • vol 8 no 3

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CONTENTS
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In This Issue

Federal Flood Risk Management Standard

Executive Order (EO) 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, was issued by the President on January 30, 2015.

P.2

An Overview of the North Atlantic Coast Comprehensive Study

An Overview of the NACCS: USACE released the NACCS report in late January 2015 detailing the findings of this two-year study.

P.5

ON THE COVER
PL84-99 Policy Updates

USACE is soliciting stakeholder feedback on the overall PL 84-99 policy concepts being considered through an Advance Notice of Proposed Rulemaking (ANPR). The ANPR has a 60-day comment period which closes 13 May 2015.

P.4

KD-A Sends

By Karen Durham-Aguilera, P.E., SES, USACE Director of Contingency Operations and Office of Homeland Security

I'm pleased to contribute to the Flood Risk Management Newsletter. I'd like to highlight a few significant national initiatives that are important to flood risk management, described in further detail in this edition of the FRM newsletter.

First, in regards to the Federal Flood Risk Management Standard (FFRMS): By now you should be aware that the President signed Executive Order (EO) 13690, which amends EO 11988, Floodplain Management to include the Federal Flood Risk Management Standard (FFRMS) on 30 January 2015. EO 13690 expands the area to which EO 11988 applies and offers three approaches for agencies to determine the flood elevation to which Federal actions occurring within this area must be made resilient. A revised version of the Guidelines for Implementing EO 11988, Floodplain Management has gone through extensive public comment and is now being finalized. The next step for USACE (and other Federal agencies) will be to revise our own agency policies and procedures for implementing EO 11988 to ensure that we are incorporating the FFRMS. We've had considerable engagement with the federal agencies as the FFRMS was developed, and are attending the public listening sessions. Much more to follow as we move through this important process!

Second, ongoing now is our Advance Notice of Proposed Rulemaking (ANPR) for our Public Law (PL) 84-99 Program. We've been in the process of revising our policy and guidance for the PL 84-99 Program for several years. In mid-February we issued the ANPR to obtain feedback on potential revisions to program eligibility criteria as well as several other key questions related to the broader PL 84-99 program. Comments in response to the ANPR are due by 14 April 2015. Please continue to encourage interest to submit comments, both within USACE and from our partners and stakeholders. The input will help us make the important decisions regarding this essential program. I expect the journey to finalize revisions to PL 84-99 program could take a year; in the meantime, the interim guidance I issued in March 2014 remains in effect.

Third, I call your attention to the North Atlantic Coast Comprehensive Study, recently completed by our North Atlantic Division. In January 2013 the Disaster Relief Appropriations Act (PL 113-2) funded and required USACE to work with a variety of partners to conduct a comprehensive study of the coastal areas affected by Hurricane Sandy. The goal of the study was to evaluate the flood risks and identify areas warranting additional analysis and institutional and other barriers to providing protection. On 28 January 2015 USACE released the results of this two-year study. This is a GREAT study with a lot of really useful accompanying products, is a risk and resiliency and decision making framework that can be applied across the U.S. I encourage everyone to take a look; the study is truly Good Stuff!

Finally, our vision and guiding principles for the Directorate of Contingency Operations. The vision statement was developed during a Directorate of Contingency Operations (DCO)/ Homeland Security (HS) off-site last December, and is intended along with the corresponding guiding principles, to help us better align across the DCO/ HS enterprise, which includes flood risk management. The vision statement is "Engineering and integrating solutions to improve national preparedness." Flood risk management plays a key role in achieving this vision. The corresponding guiding principles focus on how we operate in a mature, professional environment, and enable high-performance during both steady-state and disaster emergency operations:

- Anticipate and identify the "so what."
- Achieve excellence in steady state operations.
- Know the history before you launch.
- It is okay not to know the answer – always keep learning!
- Who else needs to know? – Communicate.
- Recognize and embrace change; focus on solutions.
- Be selfless to serve the team and the mission – no job is too small.
- Celebrate the team; recognize outstanding performance.
- Make decisions important to your organization, but not at the expense of the enterprise.
- Educating our partners and ourselves is a continual process.
- Celebrate the team; recognize outstanding performance!

As always, thank you for all that you do and for making a difference in positive flood risk management.

KD-A

Federal Flood Risk Management Standard

By Katie Noland, USACE Institute for Water Resources, and **Dr. Stephanie Bray,** HQUSACE

A sand and water mixture is pumped onshore in Port Monmouth, New Jersey, on July 1, 2014, as part of dune and beach construction there where Hurricane Sandy's impacts were severe. The dunes and beach are part of the first phase of a larger overall project designed to reduce coastal storm risks to the community. (Photo by James D'Ambrosio, USACE New York District)

In April 2013, the Hurricane Sandy Rebuilding Task Force announced that all Sandy-related rehabilitation projects funded by the Sandy Supplemental Appropriation (Public Law 113-2) must meet a consistent flood risk reduction standard. The Hurricane Sandy Rebuilding Strategy recommended that the Federal government create a national flood risk standard for Federally-funded projects beyond the Sandy-affected region.

Executive Order (EO) 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, was issued by the President on January 30, 2015. This EO builds on the successes from work accomplished by the Hurricane Sandy Rebuilding Task Force and supports the President's Climate Action Plan.

EO 13690 amends EO 11988, Floodplain Management, originally issued in 1977, to include a Federal Flood Risk Management Standard (FFRMS). The original EO 11988 governs Federal actions in floodplains and includes an eight-step decision-making process aimed to encourage wise floodplain management decisions. EO 13690 and the FFRMS expand management from the current base flood level to a higher vertical elevation and corresponding horizontal floodplain to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended.

In implementing the EO 13690 and the FFRMS, agencies have the flexibility to select one of three approaches for establishing the flood elevation and hazard area:

- Utilizing best-available, actionable data and methods that integrate current and future changes in flooding based on climate science
- Two or three feet of elevation, depending on the criticality of the building, above the 100-year, or 1%-annual-chance, base flood elevation
- 500-year, or 0.2%-annual-chance, base flood elevation

All options to determine the floodplain in which EO 11988 as amended by EO 13690 applies include attention to whether a Federal action in a floodplain is a critical action. EO 13690 defines critical action as "any activity for which even a slight chance of flooding would be too great." EO 13690 and the FFRMS are not retroactive, and will only apply to new Federal actions that are in or that impact a floodplain, and where Federal funding is used.

> "This EO builds on the successes from work accomplished by the Hurricane Sandy Rebuilding Task Force and supports the President's Climate Action Plan."

The new EO also encourages agencies to consider natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration. This is consistent with the recommendations and findings of the USACE North Atlantic Coast Comprehensive Study (NACCS). Both the FFRMS and the NACCS aim at reducing risks and enhancing resilience of a community's ability to withstand and rapidly recover from storm damages in addition to encouraging the use of natural systems, ecosystem processes, and nature-based approaches. The recently issued Principles, Guidelines

and Requirements reflect a similar recognition of these approaches and consider a broader set of measures to reduce risk, and increase resilience.

> "As required in the FY15 Appropriations Act, no agency will implement the new standard before further solicitation and consideration of public input, including from Governors, tribal leadership, mayors, and other stakeholders."

In addition to issuing EO 13690 and the FFRMS, FEMA has published revised interagency Implementing Guidelines for public comment. The proposed revisions to the 1978 Implementing Guidelines for EO 11988 address how EO 13690 and the FFRMS should be incorporated into existing decision making processes for EO 11988. The draft Implementing Guidelines are available for comment through April 6, 2015.

In conjunction with this public comment period, FEMA hosted several listening sessions to seek feedback from the public and stakeholders throughout the country. In addition to these, a virtual webinar meeting hosted by FEMA was scheduled for March 25, 2015. For more information on public sessions, visit the Federal Register notice: https://www.federalregister.gov/articles/2015/02/25/2015-03840/notice-of-public-meetings-on-the-proposed-revised-guidelines-for-implementing-executive-order-11988.

As required in the FY15 Appropriations Act, no agency will implement the new standard before further solicitation and consideration of public input, including from Governors, tribal leadership, mayors, and other stakeholders. In the months ahead, USACE will seek public dialogue as the agency develops its process to implement EO 13690 and the FFRMS. We look forward to robust engagement with our stakeholders and will continue to share information, as it becomes available, about how can they participate in the listening sessions. For more information on the FFRMS, please visit: www.fema.gov/floodplain-management/FFRMS. If you have any questions or need any additional information, please contact Ms. Katie Noland (Katelyn.M.Noland@usace.army.mil) or Dr. Stephanie Bray (Stephanie.N.Bray@usace.army.mil).

The U.S. Army Corps of Engineers Philadelphia District pumps sand onto Brant Beach, NJ in June of 2013. The work is part of an effort to restore the Coastal Storm Risk Management project from damages associated with Hurricane Sandy. (Photo by USACE Philadelphia District)

USACE Considers Changes to PL 84-99 Policies and Procedures

By Jeff Jensen, USACE Institute for Water Resources, and **Bob Waigand,** HQUSACE

Corps Quality Assurance on site for construction to replace a portion of retention wall along Mahoning Creek and State Route 54 in the Borough of Danville, Penn, Sept. 30, 2014. Approximately 90 feet of this wall was compromised during Tropical Storm Lee in 2011. The replacement work is being performed by the U.S. Army Corps of Engineers, Baltimore District, under the authority of Public Law (P.L.) 84-99, Flood Control and Coastal Emergency Act. (Photo by Sarah Gross, USACE Baltimore District)

The U.S. Army Corps of Engineers (USACE) has authority under Public Law 84-99 (PL 84-99) to undertake activities including disaster preparedness and advance measures, emergency operations including flood response and post-flood response, and the rehabilitation of flood risk management projects damaged or destroyed by floods. PL 84-99 authorities also include the protection or repair of federally-authorized Coastal Storm Damage Reduction projects.

USACE is considering updating policies and procedures for activities administered under PL 84-99 to better align them with national preparedness and response frameworks, to encourage broader flood risk management activities by sponsors, to reduce repetitive damage to projects, and to incorporate a life-cycle risk management approach. These changes support the agency's strategic direction and advance risk-informed decision making, increase risk communication efforts, improve relationships with non-federal sponsors, and enhance long-term sustainability and resilience of projects.

USACE is soliciting stakeholder feedback on the overall policy concepts being considered through an Advance Notice of Proposed Rulemaking (ANPR). The ANPR is available at http://www.regulations.gov. The ANPR provides background information on PL 84-99 authority, objectives of the policy changes under consideration, summary of the policy concepts, and targeted questions to help focus public comments. The ANPR has a 60-day comment period (which closes 14 April 2015) through which interested parties can provide input prior to the development of the Proposed Rule for 33 CFR Part 203. Comments may be submitted through one of the following options:

- Electronically at www.regulations.gov
- Via email to 33CFR203@usace.army.mil
- By mail to:
  HQ, US Army Corps of Engineers 441 G Street NW,
  ATTN: 33CFR203/
  CECW-HS/3D64
  Washington DC 20314-1000

Following the ANPR comment review, USACE will update and publish the Proposed Rule for a 60-day comment period, revise the document based on comments received, publish the Final Rule, and then revise USACE internal guidance for 33 CFR Part 203 implementation.

If you are interested in learning more about the PL 84-99 Program and/or your opportunities to provide input to changes this program please contact Jeffrey Jensen Jeffrey.D.Jensen@usace.army.mil.

An Overview of the North Atlantic Coast Comprehensive Study

By Hank Gruber, USACE North Atlantic Division

North Atlantic Division Commander BG (then COL) Kent Savre and Philadelphia District Commander LTC Chris Becking visiting the Mantoloking breach Nov. 6, 2012. The Army Corps of Engineers worked to close the breach following historic Hurricane Sandy. The North Atlantic Coast Comprehensive Study (NACCS) builds on lessons learned from Sandy and attempts to bring to bear the latest scientific information available to State, local, and Tribal planners. (Photo by USACE Philadelphia District)

On January 29, 2013, President Obama signed into law the Disaster Relief Appropriations Act, of 2013 (Public Law 113-2), to assist in the recovery in the aftermath of Hurricane Sandy. As part of the law, the Congress tasked the U.S. Army Corps of Engineers (USACE) to work with a variety of partners to conduct a comprehensive study of the coastal areas affected by Hurricane Sandy to evaluate flood risks and to identify areas warranting additional analysis and institutional and other barriers to providing protection (Public Law 113-2, Chapter 4).

This study, known as the North Atlantic Coast Comprehensive Study (NACCS), was designed to assist local communities to better understand flood risks associated with climate change and to provide tools to help those communities better prepare for future flood risks. The $19 million, two-year study builds on lessons learned from Super Storm Sandy and attempts to bring to bear the latest scientific information available to State, local, and Tribal planners. NACCS focused on the development of a risk-reduction framework to address coastal storm and flood risks to vulnerable populations, property, ecosystems, and infrastructure for the 31,200 miles of coastline within the Sandy-affected region.

"Hurricane Sandy brought to light the reality that coastal storms are intensifying and that sea-level change and climate change will only heighten the vulnerability of coastal communities."
- Brig. Gen. Kent D. Savre, Commanding General, USACE North Atlantic Division.

Major contributors to this study included State, regional, and local governments, and Federal agencies such as the Federal Emergency Management Agency (FEMA), the U.S. Department of Housing and Urban Development (HUD), the National Oceanic and Atmospheric Administration (NOOA), and the U.S. Fish and Wildlife Service.

On January 28, 2015, USACE released the NACCS report detailing the findings of this study.

"Hurricane Sandy brought to light the reality that coastal storms are intensifying and that sea-level change and climate change will only heighten the vulnerability of coastal communities," said Brig. Gen. Kent D. Savre, Commanding General, USACE North Atlantic Division. "Coastal storm risk management is a shared responsibility, and we believe there should be shared tools used by all decision makers to assess risk and identify solutions. This report provides those tools."

A nine-step Coastal Storm Risk Management Framework was developed to assist regional stakeholders in identifying coastal flooding risks and evaluating the full range of strategies available to reduce those risks. This framework can be customized to any size coastal watershed, is repeatable and scalable to State and local levels, and is transferable to other areas of the country.

Many communities along the Northeast remain vulnerable to coastal flooding. The NACCS identified nine high-risk focus areas that warrant additional analysis. They are (in no particular order): 1) Rhode Island Coastline; 2) Connecticut Coastline; 3) New York-New Jersey Harbor and Tributaries; 4)

A view of the Inner Harbor in Baltimore, MD. The city of Baltimore was identified in the NACCS as one of nine high-risk focus areas vulnerable to coastal flooding that warrant additional analysis.

Nassau County Back Bays, New York; 5) New Jersey Back Bays; 6) Delaware Inland Bays and Delaware Bay Coast; 7) the City of Baltimore; 8) the District of Columbia; and the 9) the City of Norfolk.

Existing and post-Sandy future conditions were characterized as current risk management projects and features, and socio-economic, environmental, cultural and related conditions. This created the baseline from which future measures were evaluated with regard to managing coastal flood risk and promoting resiliency.

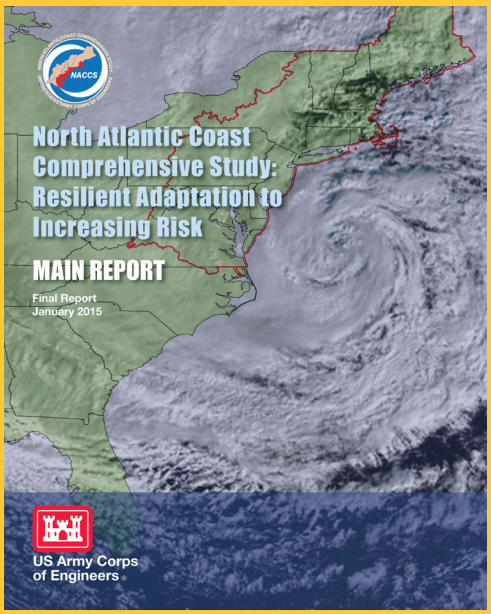
The team responsible for the report also developed the USACE low, intermediate, and high sea- level change scenarios, and NOAA's high scenario for the 26 NOAA gage locations across the study area that had measurement records equal to or greater than 40 years. The future relative mean sea level was computed for three time horizons: 2018, 2068, and 2100. Sea level change was considered as described above; however, the state of the science precluded detailed evaluations of climatology, storm frequency and severity and landfall trends at this time.
Risk areas were depicted as areas with significant exposure within FEMA's special flood hazard area: the 100-year floodplain, the 100-year floodplain +3 feet to account for sea-level rise, and a worst case scenario, SLOSH model Category 4 maximum of maximums storm event to illustrate residual risk. In addition to structural, non-structural, and programmatic measures, the study incorporated the consideration of natural and nature-based features (e.g., barrier islands, wetlands, oyster beds, riparian corridors) that may provide additional services (e.g., erosion control, reduced flooding, surge absorption) to the landscape.

Managing coastal storm risk is a shared responsibility by all levels of government and individual property owners. Not all strategies to reduce risks are engineered solutions. Communities should consider adopting a combination of strategies that emphasize wise use of the floodplain and include structural, non-structural, natural and nature-based features, and programmatic measures to manage risk. Improved land use planning, responsible evacuation planning, and strategic retreat are important and cost-effective actions that are proven to reduce coastal flood risks. But no matter what risk reduction strategies are taken, there will always be residual risk.

For additional information on the NACCS report and other related documents and tools, visit http://www.nad.usace.army.mil/compstudy.

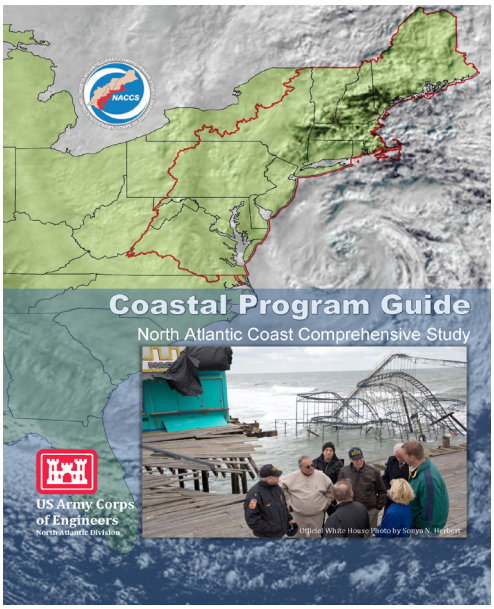
Products developed as part of the NACCS include:

- Coastal Storm Risk Management Framework with State and District of Columbia Analyses Appendix
- Environmental and Cultural Conditions Report
- Extreme Water Levels Report
- Agency Communications and Collaboration Report
- Conceptual Regional Sediment Budget
- Coastal Program Guide
- Natural and Nature-Based Features Report and Brochures
- GIS Geodatabase
- Institutional and Other Barriers Report
- Storm Surge Modeling Database
- Enhanced Depth-Damage Functions for Coastal Storms
- Measures Infographics
- USFWS Planning Aid Report
- Barrier Island Sea Level Rise Inundation Assessment Report



USACE Releases North Atlantic Coast Comprehensive Study Coastal Program Guide

By Fred Furney, USACE Baltimore District



The Coastal Program Guide was developed to support the NACCS and provide information on the various programs designed to provide assistance to coastal communities in planning for and recovery from coastal storm and flood events.

The U.S. Army Corps of Engineers (USACE) recently released the North Atlantic Coast Comprehensive Study (NACCS) report, which features the culmination of a two-year effort to address coastal storm and flood risk to vulnerable populations, property, ecosystems and infrastructure in the North Atlantic region affected by Super Storm Sandy in October 2012. One of the products developed to support the NACCS was the Coastal Program Guide (CPG).

The CPG was developed to provide information on the various programs designed to provide assistance to coastal communities in planning for and recovery from coastal storm and flood events. The CPG was categorized by purpose including grants for coastal studies, coastal projects, floodplain management administrative costs, individual flood recovery costs, and habitat studies and restoration projects, as well as risk awareness, educational, and technical services, and Hurricane Sandy programs.

With the implementation of pre-disaster mitigation actions using the resources outlined in the CPG, coastal communities can potentially reduce their risk to future coastal storm and flood events and promote resilience.

> "The CPG was developed to provide information on the various programs designed to provide assistance to coastal communities in planning for and recovery from coastal storm and flood events."

One of the most effective means to reduce risk from future coastal flooding events is to prepare in advance by identifying assets within coastal communities exposed to the flood hazard in the most flood-prone areas (or areas of relatively higher risk to flood peril). To encourage pre-storm mitigation actions to manage flood risk, the Federal Government allocates grant money through several different programs and initiatives.

Federal agencies, including USACE, the Federal Emergency Management Agency (FEMA), the U.S. Geological Survey (USGS), the U.S. Department of Housing and Urban Development (HUD), the National Oceanic and Atmospheric Administration (NOOA), the Natural Resources Conservation Service (NRCS), and U.S. Fish and Wildlife Service, have specific missions and provide unique resources that complement each other in making our Nation more resilient to coastal disasters. These resources can be viewed under three related but distinct objectives:

1. Grants to help fund studies to identify coastal storm and flood risks, and potential solutions (e.g., a study to find neighborhoods most at risk)
2. Grants to fund coastal storm and flood risk management projects (e.g., levees, bulkheads, elevation of homes, etc.)
3. Grants to assist with the administrative effort involved with coastal floodplain management (e.g., helping with updates to local Hazard Mitigation Plans).

In addition to funding, a multitude of academic partnerships and floodplain management services/tools are available to assist in making risk-informed decisions to support sustainable solutions. Many States and other coastal communities also have programs that function in the same capacity with a combination of Federal and local resources.

Awareness of these directives, resources, and funding can help communities better leverage needed resources on a disaster-wide, statewide, or community-wide basis. By becoming more familiar with Federal partnership resources and possibilities, vulnerable communities can more easily take advantage of these resources for designing projects, strategies, and risk management tools.

For more information on the programs and grants outlined in the CPG, visit http://www.nad.usace.army.mil/Portals/40/docs/NACCS/Coastal_guide_web.pdf.

Quantifying Coastal Resilience for the USACE

By Julie Rosati, USACE Engineer Research and Development Center - Coastal and Hydraulics Laboratory

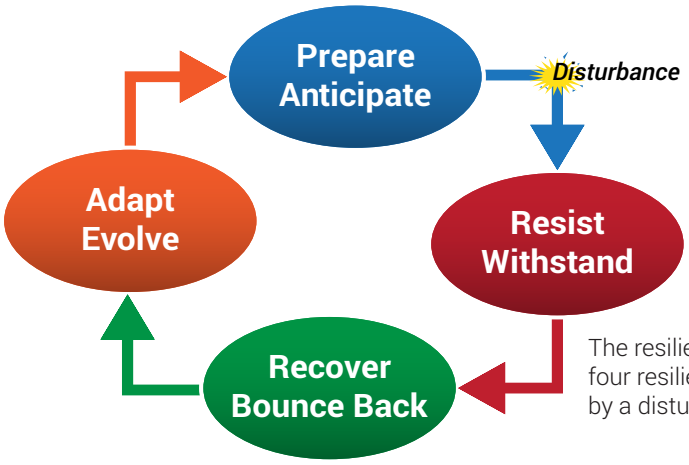
Resilience is a widely-utilized term but is not typically quantified. Researchers at the Corps' Engineer Research and Development Center (ERDC) have applied existing methods as well as developed and tested new approaches for quantifying the resilience of coastal systems.

In 2013, LTG Bostick, the Chief of Engineers, directed the Coastal Engineering Research Board to develop an implementation strategy and identify R&D needs to facilitate coastal resilience assessments. A USACE interdisciplinary team worked with other agencies and organizations to refine a definition for resilience, conduct pilot studies, and develop a research plan.

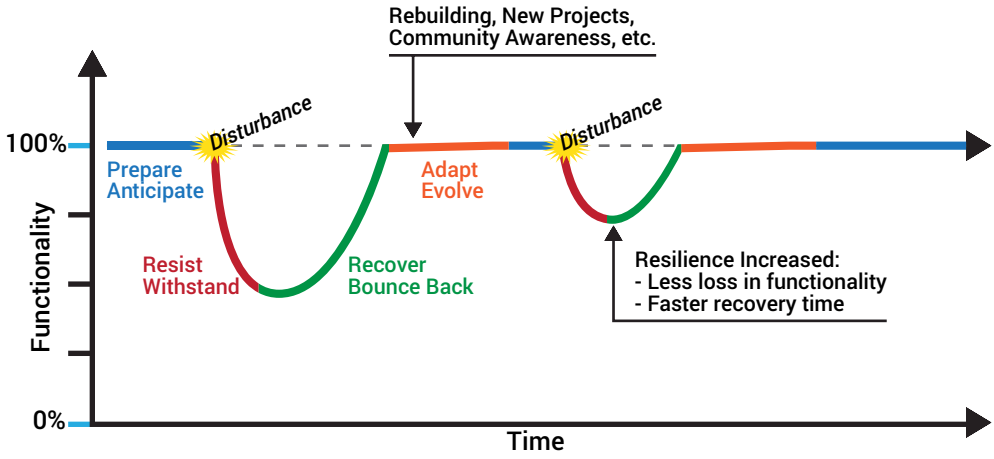
The team of engineers, scientists and policy experts from planning, engineering, and operations in District and Division offices, ERDC, and the Institute for Water Resources reviewed literature, held workshops with other agencies and non-governmental organizations, and conducted two pilot studies for Jamaica Bay, NY, in order to test methods, and develop a strategy for implementing resilience assessments and identify associated R&D needs.

The team investigated more than 50 definitions of resilience, and adapted a definition to emphasize four key actions as they affect the functioning of a coastal system: "Resilience is defined as the ability of a system to prepare, resist, recover, and adapt to disturbances in order to achieve successful functioning over time."

The team developed three tiers of analyses appropriate for planning, engineering, and operational studies that are conducted by the Corps. The tiers focus on engineering, ecological, and community infrastructure.



The resilience cycle in which the four resilience actions are disrupted by a disturbance.



The resilience timeline in which, through the process of adaptation, overall system resiliency is increased resulting in less loss in functionality and more rapid recovery.

Tier 1 is a rapid assessment based on expert elicitation. Tier 2 is a feasibility-level assessment based on heuristic, empirical models, or previous calculations. Tier 3 is a rigorous assessment based on probabilistic analyses (Schultz et al. 2012).

Both Tier 1 and Tier 3 methods were tested in pilot studies conducted at Jamaica Bay, NY, which was devastated by Hurricane Sandy and includes extensive engineering, ecological, and community projects and interests.

Reference

Schultz, M.T., McKay, S.K., and Hales, L.Z. 2012. *The quantification and evolution of resilience in integrated coastal systems.* ERDC-TR-12-7, US Army Corps of Engineers, Engineering Research and Development Center, Vicksburg, MS, 70 p.

CHARGing Ahead in 2015: Momentum Builds with Release of Strategic Brief at the 2015 BAFPAA-CHARG Annual Conference

By Craig Connor, USACE San Francisco District

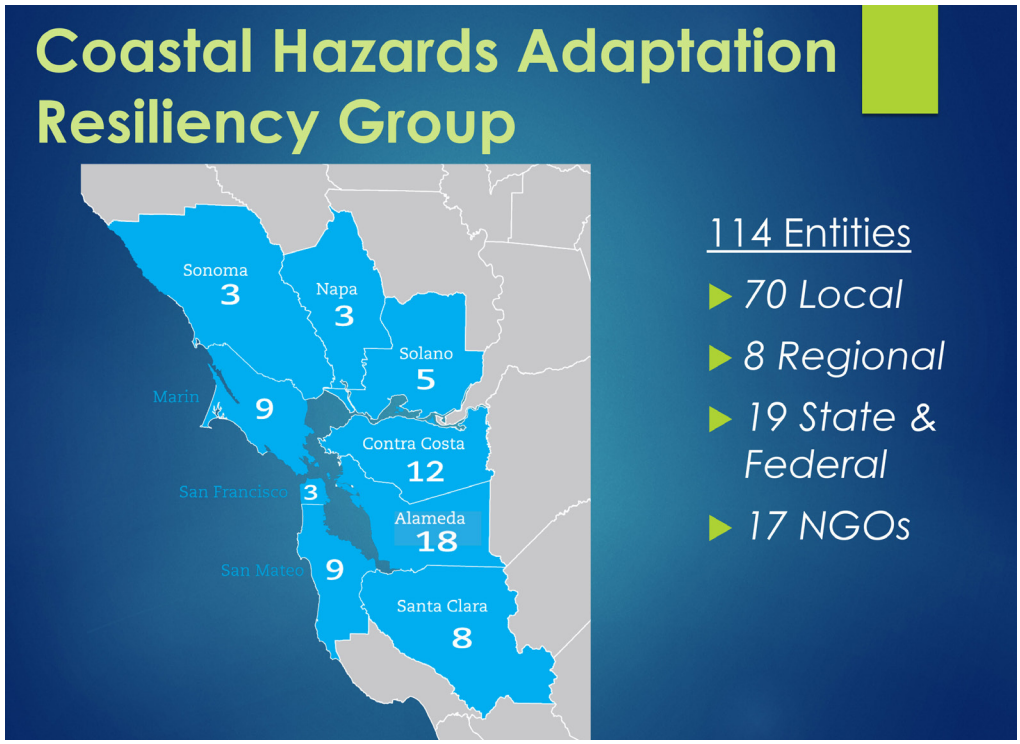
With the impacts of sea level rise and the looming implication on the horizon in the San Francisco Bay region, representatives from Federal, State, and Local agencies have assembled an ad hoc working group to address regional flood protection issues. The group identifies itself as CHARG (Coastal Hazards Adaption Resiliency Group) and has met several times since May 2014.

CHARG is uniquely comprised by agencies and organizations responsible for implementing solutions to address coastal hazards. Never before has there been a more unifying need for flood managers across all levels of government to join forces to protect the safety and welfare of the San Francisco Bay region's people, property, and economy.

Steering Committee members include the U.S. Army Corps of Engineers (USACE), Federal Emergency Management Agency (FEMA), State of California Department of Water Resources (CA DWR), State Coastal Conservancy, San Francisco Bay Conservation and Development Commission, Bay Area Joint Policy Committee, San Francisquito Creek Joint Powers Authority, Santa Clara Valley Water District, and the Flood Control and Water Conservation Districts of Alameda, Marin, and Contra Costa Counties.

CHARG Strategic Direction Established

The new **CHARG *Strategic Brief*** debuted at the S*ea Level Rise, Extreme Weather and Regulatory Hurdles: The New Challenges for Flood Protection Conference* hosted by the Bay Area Flood Protection Agencies Association (BAFPAA) and CHARG in Oakland, California on February 19th.



CHARG's vision is to "collaborate across all levels of government and align resources to implement integrated, multi-benefit coastal hazards solutions to mitigate risk and improve and protect quality of life and property along the San Francisco Bay." To accomplish this vision, six goals were outlined including:

- **Goal 1:** Improve regional coordination.
- **Goal 2:** Solve regional coastal hazards and flood management issues.
- **Goal 3:** Transfer technical knowledge.
- **Goal 4:** Provide a unified voice on needed policies.
- **Goal 5**: Develop financing and funding strategies.
- **Goal 6**: Move public education forward.

CHARG will be launching working groups for three focus areas that tie with these goals: (Goal 3) Transfer technical knowledge; (Goal 4) Develop a policy strategy; and (Goal 5) Identify funding mechanisms.

For more information, visit the CHARG website at www.acfloodcontrol.org/SFBayCHARG. The website includes an interactive map that highlights more than 100 shoreline projects being led by 33 entities, valued at more than tens of billions of dollars. The CHARG's Strategic Brief and the presentations from the BAFPAA-CHARG joint conference can also be viewed on their website.

The Association of State Dam Safety Officials (ASDSO) Hosts Webinars on the International Levee Handbook

By Yazmin Seda-Senabria, HQUSACE

Corps engineers Josh Cress and Charles Boyd inspect the levees in Hendrum, Minn. on April 11, 2011. Webinars are being offered each month through August 2015 covering chapters in the International Levee Handbook. The United States, through the U.S. Army Corps of Engineers, took a leadership role in the development of two of the ILH chapters, including a chapter on Operations and Maintenance of levee systems (Chapter 4) and on Emergency Management (Chapter 6). (Photo by Shannon Bauer, USACE St. Paul District)

In January 2015, the Levee Safety Coalition initiated a series of sponsored webinars hosted by the Association of State Dam Safety Officials (ASDSO). Through August 2015, two webinars are being offered each month to cover each chapter of the International Levee Handbook (ILH).

Each webinar covers a specific topic presented by a chapter's lead author. All of the webinars will be recorded and archived for future reference. Webinars are complimentary and open to the general public.

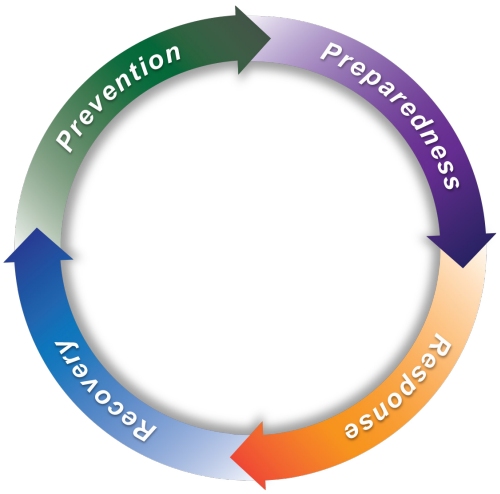
The ILH came to fruition after organizations from six countries, including Germany, France, Ireland, Netherlands, United States, and the United Kingdom, agreed to participate in developing a comprehensive resource document regarding the operation, assessment, maintenance, monitoring, design, and construction of levees. Following several international workshops, representatives from the six countries developed the ILH, reflecting rigorous collaboration and promoting the sharing of information and engineering best practices.

The United States, through the U.S. Army Corps of Engineers, took a leadership role in the development of two of the ILH chapters, including a chapter on Operations and Maintenance of levee systems (Chapter 4) and on Emergency Management (Chapter 6).

The development of Chapter 6, Emergency Management, was co-led by the USACE Office of Homeland Security in partnership with the U.S. Department of Homeland Security, Office of Infrastructure Protection. The chapter provides an overview of the emergency management life cycle, which consists of preparedness, response, recovery and mitigation. The chapter focuses mostly on the preparedness and response aspects, with minor information regarding recovery and mitigation, while pointing to another chapter of the handbook for additional information on these two topics.

Members of the Levee Safety Coalition, including ASDSO, the American Society of Civil Engineers (ASCE), the U.S. Society on Dams (USSD), the National Association of Flood and Stormwater Management Agencies (NAFSMA), and the Deep Foundations Institute, fully support and endorse the ILH.

For a schedule of upcoming webinars sessions and registration information, visit the ASDSO website at www.damsafety.org.



Corps Reduces Flood Risk Through Education

By Hunter Merritt and Rhiannon Kucharski, USACE Sacramento District

Sacramento District economist John Kucharski teaches AP Physics students about the destructive force of flood. The Simulated Water Management Model, or SWMM, was designed by Kucharski and others to help students develop critical thinking skills.

The U.S. Army Corps of Engineers Sacramento District recently worked with the State of California Department of Water Resources to reduce Californians' flood risk, using one of the most powerful flood-fighting tools: education.

"With the current changes in education, both the Common Core and Next Generation standards emphasize the critical need to make learning have meaning for students."
- Phil Romig, Science Curriculum Specialist, Sacramento County Office of Education

One of three district Silver Jackets' Interagency Nonstructural Flood Risk Management pilot projects completed in 2014, the California Educator Project focuses on increasing awareness, especially among children, to enable them to prepare for and take action in case of a flood emergency.

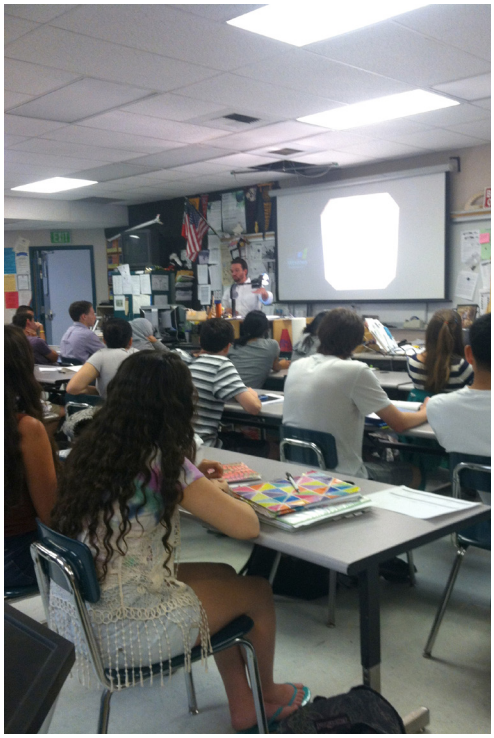
Team members used free, open-source software to develop water management computer models for use by middle school and high school teachers in Science, Technology, Engineering and Math (STEM) disciplines.

The Corps team conducted several flood risk awareness exercises with staff at the District office and visited classrooms to demonstrate the educational models with students and teachers. Outreach will continue in Spring 2015 to promote awareness and use of the educational tools throughout California.

"With the current changes in education, both the Common Core and Next Generation standards emphasize the critical need to make learning have meaning for students," said Phil Romig, science curriculum specialist at the Sacramento County Office of Education, one of the pilot project partners. "Students…are engaged in a technology based engineering project that has real-world relevance, such as water storage and flood," said Romig.

In addition to the Corps and DWR, several agencies, organizations and educators were involved in the project, including the National Oceanic and Atmospheric Administration/National Weather Service, the Corps' Institute for Water Resources, Project WET (Water Education for Teachers), Green 360 and educators from across the state.

The Corps and DWR also produced a children's flood preparedness activity book for younger kids. All of the pilot project files are available for free on a Corps website: http://www.spk.usace.army.mil/Missions/FloodRiskAwareness/EducationResources.aspx



Students review water management computer models to help develop critical thinking skills.

Minnesota Silver Jackets Team Emergency Action Plan Guidebook Template

By Lisa Bourget, USACE Institute for Water Resources, and **Terry Zien,** USACE St. Paul District

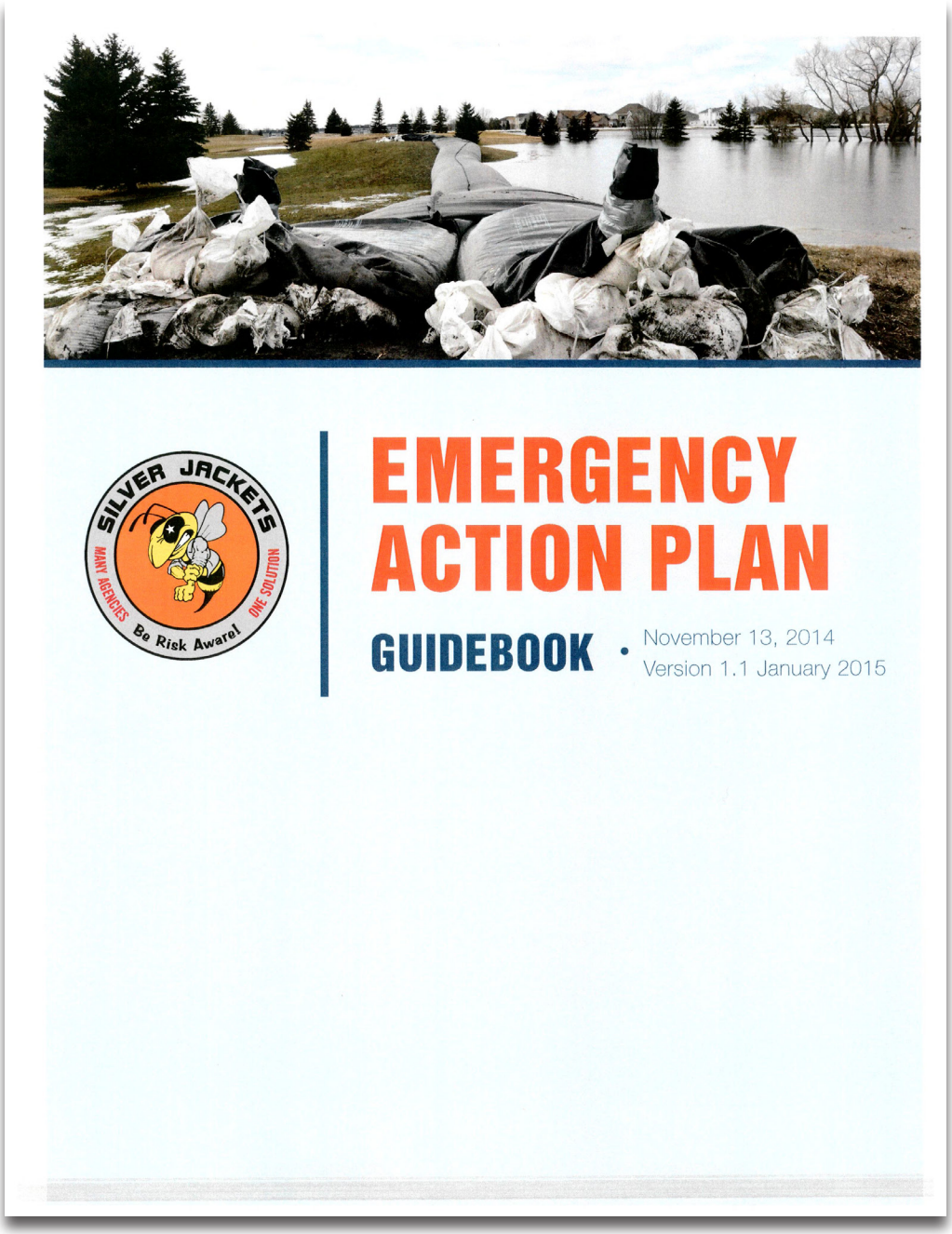
Following a request from the state, the Minnesota Silver Jackets team developed a guidebook with templates that communities can use to develop emergency action plans that identify risks and mitigation opportunities, incorporating flood response, evacuation plans, and communication to the public.

Intended for use by communities in coordination with other flood risk management partners, the guidebook offers a straightforward process to encourage getting started. Key chapters include identifying the flood organization personnel, developing contacts and mutual aid agreements, understanding flood elevations and how they relate to the local community, and developing a list of tasks and prioritized actions.

Based on the premise that getting anything down on paper is better than not having a plan, each chapter begins with specific advice regarding what to do "if you only have time to do one thing." The guidebook address a broad range of considerations, including understanding local authority and overall role during a disaster, evacuation routes, emergency shelters, utilities, critical facilities and hazardous materials, communications, training and exercises, and mitigation and floodplain management.

The guidebook lays out steps in plain English with minimal acronyms and proposes an 8-month process for a local team to develop an emergency action plan. Available in hardcopy and digitally, it includes 21 forms or samples (including sample council resolutions and press releases), a sample plan, and 62 links to other examples, guidebooks, and related articles.

The guidebook is being implemented with the Fond du Lac Tribe in Minnesota as a case study, and other Silver Jackets teams are making use of it with their partners. CDs have been distributed at various meetings, including the Federal Emergency Management Agency's RiskMAP meetings, and the Guidebook has been presented in numerous venues. The Guidebook is available online and will be updated periodically.



Other Important Information

FY15 PROSPECT COURSES

Dam Safety	Grenada, MS	30 March-2 April 2015
	Branson MO	4-7 May 2015
	Royal, AR	8-11 June 2015
Coastal Project Planning	Duck, NC	27 April-1 May 2015
	Duck, NC	4-8 May 2015
Public Law 84-99	Tulsa, OK	20-24 April 2015
Risk Communication and Public Involvement	Huntsville, AL	21-23 April 2015
Wetland Stream Ecology Basic	Kalispell, MT	17-20 August 2015
Wetland Development and Restoration	Olympia, WA	31 August-2 September 2015
Wetland River Function/Ecology	Kalispell, MT	6-9 October 2015

Conferences

19-23 April 2015 – SEDHYD 2015 – **10th Federal Interagency Sedimentation Conference & 5th Federal Interagency Hydrologic Modeling Conference** – Reno, NV - http://www.sedhyd.org/2015/

17-20 May 2015 – **National Flood Conference** – Washington, DC – http://pcievents.cvent.com/events/national-flood-conference/event-summary-a9531dd9e9e7459b8409e3442669a1db.aspx

20-22 May 2015 **4th International Conference on Disaster Management and Human Health: Reducing Risk, Improving Outcomes** – Istanbul, Turkey – http://www.wessex.ac.uk/15- conferences/disaster-management-2015.html

31 May – 5 June 2015 – **Association of State Floodplain Managers** – Atlanta, GA – http://asfpmconference.org/

17-19 June 2015 – **River Basin Management 2015 – 8th International Conference on River Basin Management** - A Coruña, Spain – http://www.wessex.ac.uk/15-conferences/river-basin-management-2015.html

9-11 September 2015 – **Coastal Structures '15** – Boston, MA – TBA

Good to Know

The December 2014 issue of the Journal of Dredging featured an Engineering With Nature (EWN) related article beginning on page 1. Additional information on EWN can be found at www.engineeringwithnature.org.

FRM Statements of Need: Submitting "Statement of Need" is the first step in the process of a concept becoming a requirement for research and development. If USACE District personnel have problems or situations they feel should be addressed by research, the Flood Risk Management Gateway, http://operations.usace.army.mil/flood.cfm, is the place to submit these research Statements of Need (SoNs).

Past issues of this newsletter, various links, news items, and presentations, are all available on the Flood Risk Management Gateway, http://operations.usace.army.mil/flood.cfm. Check it out!

Save the Date

2015 Flood Risk Management Workshop,
30 Nov-4 Dec 2015, Southbridge, MA

This newsletter is a product for and by the Flood Risk Management Community. The views and opinions expressed in this unofficial publication are not necessarily those of the U.S. Army Corps of Engineers or the Department of the Army.

*If you would like to submit an article or an idea for an article for the next edition of the newsletter, or if you have any comments or questions about articles in this edition, please email **Yazmin.Seda-Sanabria@usace.army.mil.***

FRM Flood Risk Management Newsletter

US Army Corps of Engineers